

Application No.: 10/713,754

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**REMARKS**

Claims 1-33 are pending to the present application. By virtue of this response, claims 1-5, 9, 12-16, 20, 23-27, and 31 have been amended and new claims 34 and 35 have been added. Accordingly, claims 1-35 are currently under consideration. Amendment and cancellation of certain claims is not to be construed as dedication to the public of any of the subject matter of the previously presented.

**Claim Rejection Under 35 U.S.C. § 103**

Claims 1-33 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Tcherniaev et al. (U.S. Patent No. 6,577,992, hereinafter the Tcherniaev reference) in view of Zhou et al. (U.S. Patent No. 6,807,520, hereinafter the Zhou reference). Applicants respectfully traverse these rejections.

With respect to independent claims 1, 12, and 23, Applicants submit that the combination of the Tcherniaev and Zhou references does not teach or suggest each and every element of these independent claims as amended. Specifically, the combination of the Tcherniaev and Zhou references does not teach or suggest at least the elements of “a port connectivity interface, ... wherein the port connectivity interface facilitates communications of dynamic information between the one or more driver leaf circuits and the one or more receiver leaf circuits, and wherein dynamic hierarchical data structures of the one or more driver leaf circuits and the one or more receiver leaf circuits are maintained.” (Emphasis added.)

First, the Zhou reference does not teach or suggest the port connectivity of the present invention. The Office Action cited column 13 lines 2-6 that discloses this claim element. However, Applicants note that Zhou refers to static connectivity information, which is supported by the statement that “The connectivity information is a static database,” and “[T]he static data structure 530 contains: 1) connectivity information; 2) model parameters; and 3) matrix formulations for the cell. This information is not time varying and is also the same for each instance of a same cell.” (See Zhou, column 13, lines 6-16.) Similarly, the Tcherniaev also stores port connectivity of instances and connectivity of elements in the static storage of a subcircuit during simulation. (See

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Tcherniaev, Figure 2D item 260, and its corresponding description at column 10, lines 39-65.) On the contrary, the present invention claims a port connectivity interface that facilitates communications of dynamic information between the one or more driver leaf circuits and the one or more receiver leaf circuits, which is distinguished from the Tcherniaev and Zhou references.

Second, the Zhou reference teaches that “[D]ynamic information is stored in a flatten way and static information is shared and stored in a hierarchical fashion by the present invention.” (See Zhou, column 13, lines 25-27.) Thus, a person skilled in the art would understand that the hierarchical data structure of the dynamic information in the Zhou reference is flattened (and therefore lost) during the simulation. On the other hand, claim 1 is distinguished from the combination of the Tcherniaev and Zhou references because the “dynamic data structures of the one or more driver leaf circuits and the one or more receiver leaf circuits are maintained.”

Third, the combination of the Tcherniaev and the Zhou references fails to teach or suggest a port connectivity interface that facilitates communications of dynamic information between the one or more driver leaf circuits and the one or more receiver leaf circuits during simulation. Specifically, the “sensitivity vector” only describes node voltages inside the cut stage of a circuit. The Zhou reference fails to disclose the sensitivity vector is capable of communicating information outside of the cut stage. In one embodiment at step 450 of Figure 9, Zhou describes using “the sensitivity vector for a cut stage to compute the internal node voltage s of the cut stage.” (See Zhou, column 13, lines 45-48, and lines 58-60.) Similarly, the dynamic storage (item 268 of Figure 2D) disclosed by the Tcherniaev reference stores the states of a subcircuit. The states disclosed by the Tcherniaev reference are not used to communicate dynamic information as claimed in the present invention.

With respect to claims 3, 14, and 25, Applicants assert that since both the Tcherniaev and Zhou references fail to disclose the port connectivity interface of the present invention, they also fail to disclose that the port connectivity interface is generated dynamically upon detecting a set of triggering conditions during simulation.

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With respect to claims 4, 15, and 26, Applicants assert that the combination of the Tcherniaev and Zhou references fail to disclose at least the claim limitations of "a set of load vectors for referencing to a set of loads of the one or more driver leaf circuits; and an array of storage elements for storing information associating the set of loads to the set of input ports." Both of the cited references do not describe a port connectivity interface that includes a set of load vectors for reference to a set of loads of the one or more driver leaf circuits. The figures and their descriptions cited in the Office Action only describe the physical circuits to be simulated. They do not describe the ways to account for loads of a driver circuit during simulation. The set of load vectors are useful for maintaining the load information for the one or more driver leaf circuits, especially in a dynamic simulation environment where the load of a driver leaf circuit may change over time during the course of the simulation.

The supports for new claims 34 and 35 are found in Figures 8B, 12A, 12B, the corresponding descriptions of the figures, and page 30 paragraph [0045] to page 33 paragraph [0050].

For at least the reasons presented above, Applicants respectfully submit that the combination of the Tcherniaev and Zhou references does not teach or suggest each and every element of the independent claims 1, 12, and 23. Applicants also assert that claims 2-11, 13-22, 24-33, and 34-35, which variously depend from their independent claims, are allowable for at least the reason that they depend from allowable independent claims.

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**CONCLUSION**

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. 188122001900. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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